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ABSTRACT

This manual was developed to help Peace Corps volunteers who are serving as community health workers in developing nations to teach expectant mothers about pregnancy and childbirth. The material is organized in four sections corresponding to four prenatal classes plus a section on labor and delivery information for health care workers. Some of the topics covered by the lessons include anatomy and physiology, comfort during pregnancy, sex during pregnancy, nutrition, labor, relaxation and breathing during labor, breastfeeding, stages of labor, hospital admission, danger signs, the newborn, lactation, postpartum exercises, comfort measures during labor, Caesarian section, breech delivery, and postpartum care. Suggested teaching aids and sample handouts are provided. The materials are illustrated with line drawings, and a bibliography for further reading is included. (KC)

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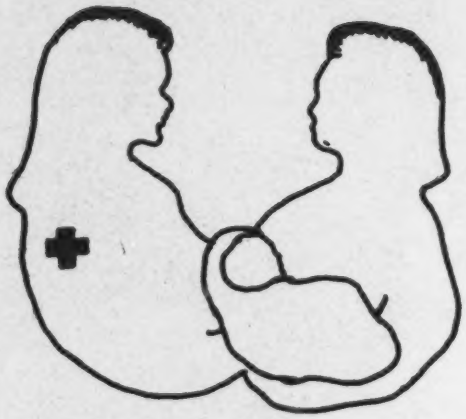
APPROPRIATE TECHNOLOGIES FOR DEVELOPMENT

Preparation for Childbirth



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Peace Corps

PREPARATION FOR CHILDBIRTH

A HEALTH WORKERS MANUAL

Published by
Peace Corps Columbia
May, 1979

Miriam Hansen
Karen King
Barbara Lee

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FOREWORD

Pre-natal, childbirth and post-natal care of women and children are important aspects of public health efforts throughout the world. In Colombia, they are of high priority because according to Ministry of Health data for the period 1973-1976, some of the leading causes of mortality among women in their reproductive years were:

- o Hemorraghing during pregnancy and birth.
- o Toxemias of pregnancy and puerperium.
- o Other abortions and those unknown.
- o Sepsis at birth and during puerperium.
- o Other complications of pregnancy, birth and puerperium.

These causes accounted for 19.4% of all deaths for women in the reproductive years. The five leading causes mortality for children under one year of age for the same time frame were:

- o Enteritis and other diahrretic illnesses.
- o Other neumonias.
- o Other causes of perinatal mortality.
- o Anoxic and hypoxic conditions not otherwise classified.
- o Bronchitis, enphysema and asthma.

They accounted for 63.3% of mortality among this age group. All the causes cited above for maternal and infant mortality are also important morbidity factors.

These causes are all reducible. The profile just presented may not differ significantly from those of other developing countries.

Improved pre-natal, childbirth and post-natal education can produce positive impact upon the factors enumerated. This manual can be considered as an additional tool for the health worker engaged in maternal and child health activities at the primary, secondary or tertiary levels of care.

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INTRODUCTION

Many women, especially in the lower socio-economic level of society, view pregnancy as an illness and approach childbirth with dread. This fear is not only a product of ignorance about the normal process of pregnancy, labor and delivery but also a lack of knowledge about how to cope with their accompanying discomforts. The purpose of this manual is to show the health worker how to prepare these uninformed women for a comfortable and satisfying childbirth experience. The objectives of this book are:

1. to educate expectant mothers about the physical aspects of childbearing,
2. to develop specific skills in these women for managing the discomforts of pregnancy and childbirth,
3. to help these mothers think of childbearing as a natural function which can include some elements of pleasure, and
4. to encourage mothers who have attended classes to communicate their enthusiasm to their families and the rest of the community.

The form of this guide shows the health worker how to plan and conduct three or four prenatal classes with expectant mothers and how to incorporate the skills learned in these meetings into the childbirth experience. The classes could be held at the same time as prenatal visits or at a different time and place. Ideally, the mothers would have taken the first three classes during the last trimester of pregnancy; the fourth class can be given either pre or post-natally. Included in the Appendix are suggested teaching aids to go along

with the content of each class. The outline is sufficiently flexible to allow the teacher to make it suitable for her mothers and particular situation. Mothers exposed to the information and training in this book can be expected to approach pregnancy and childbirth with confidence and optimism.

PART 1

PART I

FIRST PRENATAL CLASS

ANATOMY

In order for the pregnant woman to have a good childbirth experience, she must have a fairly good understanding of her body and that of her mate. If she understands what each part of the reproductive system does and why, she will realize that what is happening during her pregnancy is a natural, well-organized process. This chapter on anatomy and physiology is somewhat detailed and it may not be necessary to elaborate on everything mentioned; it has been included to enable the instructor to answer any questions that may arise.

MALE REPRODUCTORY SYSTEM (Figure # 1)

A. External Parts

1. Scrotum - sacklike structure containing the testes.

2. Penis - organ of sexual intercourse; urethra passes through center and serves as a passage-way for both urine and seminal fluid.

B. Internal Parts

1. Testes - 2 glands in the scrotum which produce spermatozoa, the male cells that are needed to fertilize a female egg. The production of sperm begins at puberty (about 15 years) and continues throughout life.

2. Seminal vesicles - 2 sacklike structures containing semen.

3. Canal system - tubes which connect testes with the seminal vesicles and the seminal vesicles to the urethra in the penis.

At the time of sexual excitement, the penis, which is usually flaccid, becomes engorged with blood making it erect and permiting entry into the vagina of the woman. At the time of ejaculation, sperm cells are released from the testes and pass through the canal system to the seminal vesicle. There the sperm is mixed with semen and passes to the urethra, which is temporarily blocked from the bladder, and is deposited in the vagina. If intercourse occurs during the fertile period in the woman's monthly cycle, fertilization may occur. This happens when one of the millions of sperm manages to reach the egg and penetrate it, creating the first cell of a human baby. The other sperm live from 4 to 5 days and die.

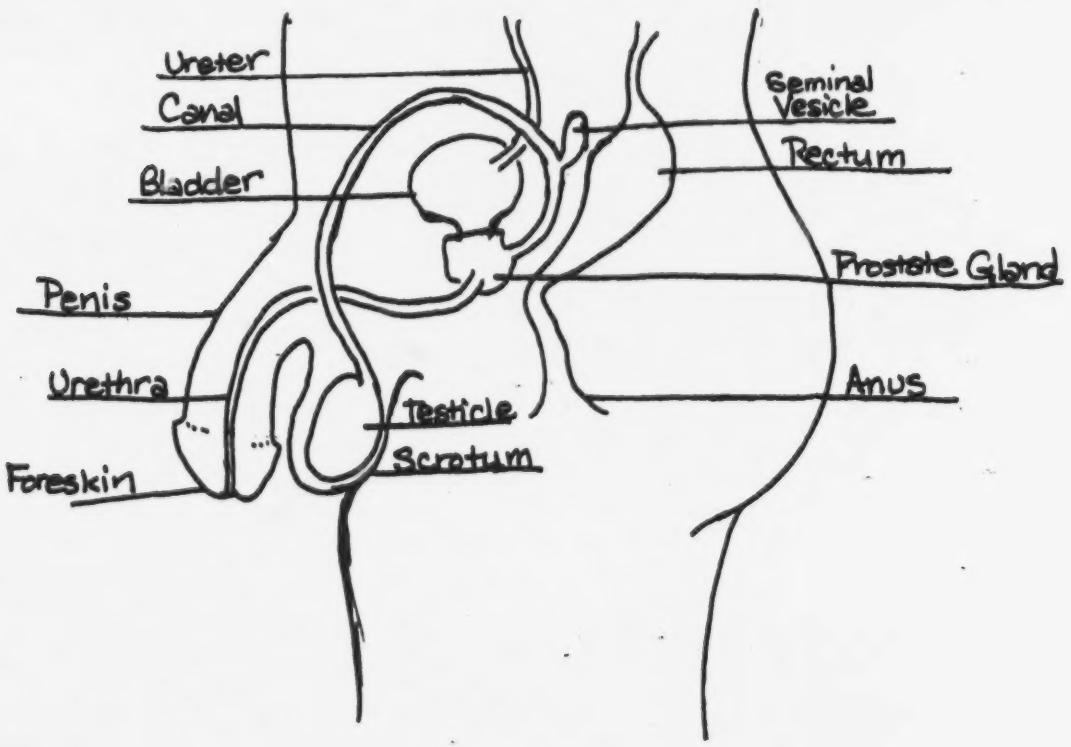


Figure # 1 Male Reproductory System

FEMALE REPRODUCTORY SYSTEM

A. The External Parts (Figure # 2)

1. Clitoris - small organ of erectile tissue which is the primary site of orgasm in the woman
2. Urethral Opening - outlet for urine
3. Labia Majora - outer lips
4. Labia Minora - inner lips
5. Vaginal Opening - outlet of the birth canal
6. Hymen-thin membrane in the vaginal opening normally present in virgins

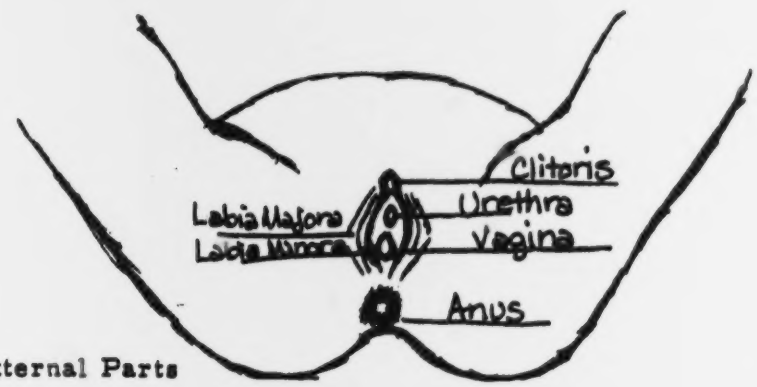


Figure # 2 External Parts

B. The Internal Parts (Figure # 3)

1. Uterus.- The hollow organ, whose main function is to receive a fertilized egg and nourish it until birth, is called the uterus. The uterus of a non-pregnant woman is about the size of a closed fist and is situated between the bladder and the rectum. It is somewhat triangular in shape and opens into the cervix which is the neck of the uterus. The cervix has a very small opening, but at the time of childbirth it opens to a size big enough to let the baby through.

2. Fallopian Tubes.- The two thin, trumpet-shaped tubes connected to the upper part of the uterus, one on either side, are called the fallopian tubes. The wider ends of the tubes open into the abdomen very near to the ovaries.

3. Ovaries.- The two small, almond shaped organs, one on either side of the uterus, are called the ovaries. Their function is to ripen and release eggs and excrete certain hormones.

4. Vagina.- The passageway from the uterus to the exterior, which is 3 to 5 inches in length, is called the vagina. It has three functions:

   a. allows menstrual flow to escape
   b. organ of sexual intercourse in the woman
   c. birth canal during delivery of a baby

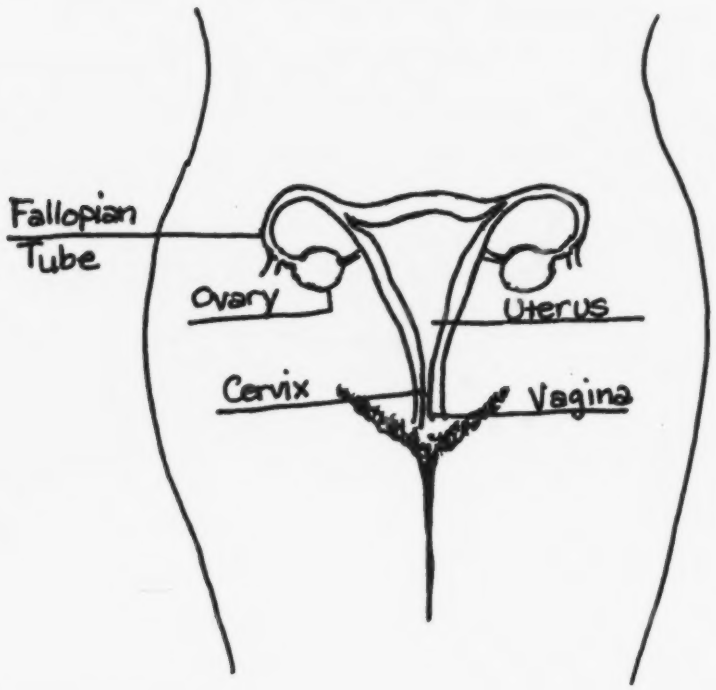


Figure # 3 Internal Parts

5. Pelvis. - The boney, basin-shaped structure that rests on the lower limbs and supports the spinal column is called the pelvis. All internal organs of reproduction are contained within it and it is through its rigid boundaries that the baby must pass in childbirth.

6. Pelvic Floor.- The elastic, sling-shaped muscle group hanging down from the bones of the pelvis is called the pelvic floor. It is this group of muscle fibers which must stretch to allow the baby to pass out of the mother's body.

7. Mammary Glands.- The mammary glands, or breasts, are not involved directly in reproduction but play a very important part in motherhood. At the time of puberty, the breasts begin to increase in size in preparation for the time when a woman will breastfeed an infant. They

are made of glandular tissue and fat. The darker area which surrounds the nipple is called the areola and during pregnancy it becomes darker in color. The nipple contains from 3 to 20 small openings through which milk is released.

PHYSIOLOGY

THE MENSTRUAL CYCLE

The normal menstrual cycle is 28 days but may vary from 21 to 35 days. The cycle begins on the first day of menstruation. (Fig. #4-A). After menstruation, the pituitary gland releases hormones to stimulate the ovary to produce a single mature ovum or egg. The ovary in turn secretes a hormone to start to rebuild the lining of the uterus. (Fig. #4-B). Between the 12th and 16th day one ovary will release a ripened egg in a process called ovulation. (Fig. #4-C). The ovaries alternate in this function. The released egg is swept up in the fallopian tube (Fig. #4-D) and is eventually carried to the uterus. During the egg's journey through the tube, the uterus is preparing a lining for the possibility of the egg's being fertilized and needing a home. If it is fertilized, it embeds itself in this thick lining of blood where it can be nourished and grow. If fertilization does not take place, the lining is no longer needed and it is sloughed off as the menstrual flow which starts the cycle over again.

Menstruation is not a sickness. In the normal woman the blood loss is only 4 to 6 tablespoons and should not cause anemia or affect health.

The Menstrual Cycle

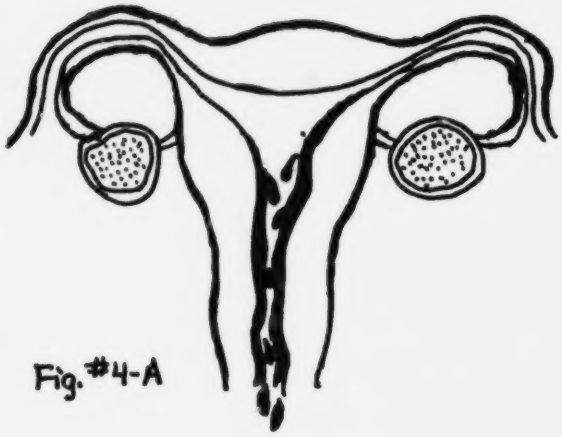


Fig. #4-A

Day 1-4 Menstruation

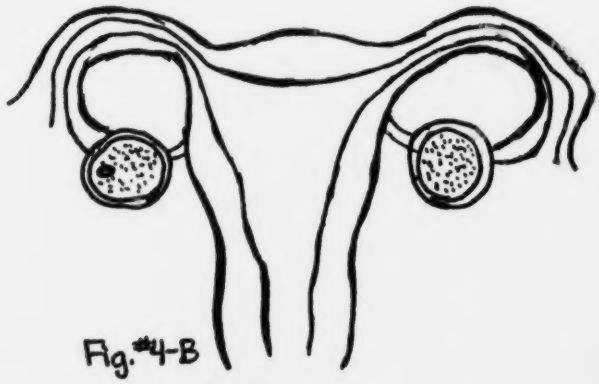


Fig. #4-B

Days 5-13
Development of Ovum

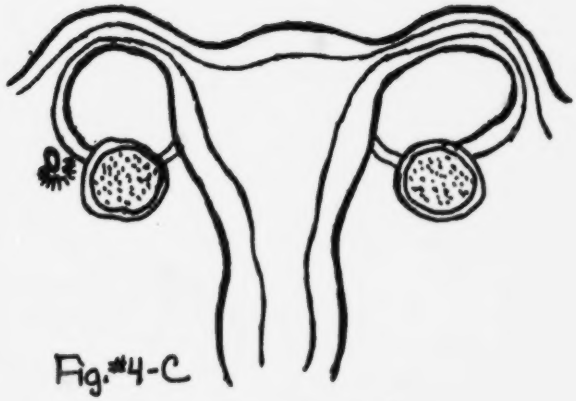


Fig. #4-C

Day 14 Ovulation

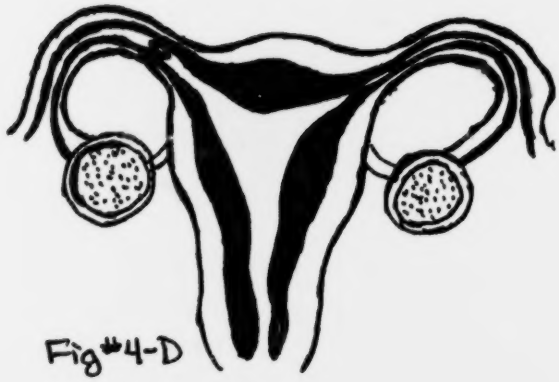


Fig #4-D

Days 15-28
Lining thickens, ovum travels, degeneration of lining

PRENATAL DEVELOPMENT

It is advantageous for the mother to anticipate the changes that she is likely to experience as the fetus develops. She will often be interested in seeing pictures of the fetus at various stages of development. By discussing the physical changes that often occur to the woman's body as the pregnancy progresses, the mother will understand more fully and anticipate these normal changes. (Figure # 5).

A. First Trimester (1st to 12th week)

1. Growth of the Embryo

The fertilized egg is called an embryo for the first 8 weeks after conception. As soon as the egg is fertilized it begins to divide and produce more cells, so that by the time it reaches the uterus (about 4 to 5 days after fertilization) it has already begun growing. Each cell will then divide to form various parts of the fetus. From 8 weeks after conception to birth, the baby is called a fetus. At 8 weeks of development, the eyes, nose, mouth and fingers are beginning to form. At 12 weeks, the fetus resembles a newborn baby. It measures about 11.5 cms. in length and weighs about 19 grms.

2. Physical Changes

Few women have all of the physical changes mentioned, but most will experience some. They are all listed to help the mother understand that if any of these changes occur, they are normal.

a. Once the egg is fertilized, normal menstrual periods cease throughout the nine months of pregnancy. There may be light bleeding when the embryo attaches to the uterus or when a period would have occurred.

b. The need to urinate may become more frequent due to hormonal changes and because the uterus is pressing against the bladder.

c. The breasts will probably begin to enlarge and be slightly tender because the milk glands are beginning to develop. Since there is an increased blood supply to the breasts, the veins become more prominent. The areola becomes darker and broader.

d. Some women experience nausea and vomiting (morning sickness) due to elevated hormone levels but this usually passes after the third month.

e. Increased fatigue is common.

B. Second Trimester (12th to 24th Week)

1. Growth of the Fetus

a. By the 16th week the sex of the baby could be determined. Hair appears and there is a strong heart beat.

b. The internal organs are maturing at astonishing speed and by the 24th week are almost fully developed.

2. Physical Changes

Usually at about the fourth month, the mother notices changes in her figure and her clothes may no longer fit.

a. During this stage the mother begins to feel the movements of the fetus.

b. The fetus may cause changes in the mother's circulation producing cramps in the legs and feet.

c. A dark line called the línea negra may appear from the navel to the pubic area. There may also be pigment changes in the face sometimes forming a butterfly shape across the nose and cheeks. The línea negra and "mask of pregnancy" disappear after delivery.

d. As the uterus grows the skin over it stretchs and may produce pink or reddish lines called stretch marks or striae.

e. The breasts are bigger and heavier, and in preparation for breast-feeding, may secrete a thin, yellowish liquid called colostrum.

f. The digestive system works more slowly and consequently indigestion and constipation are common.

Prenatal Development

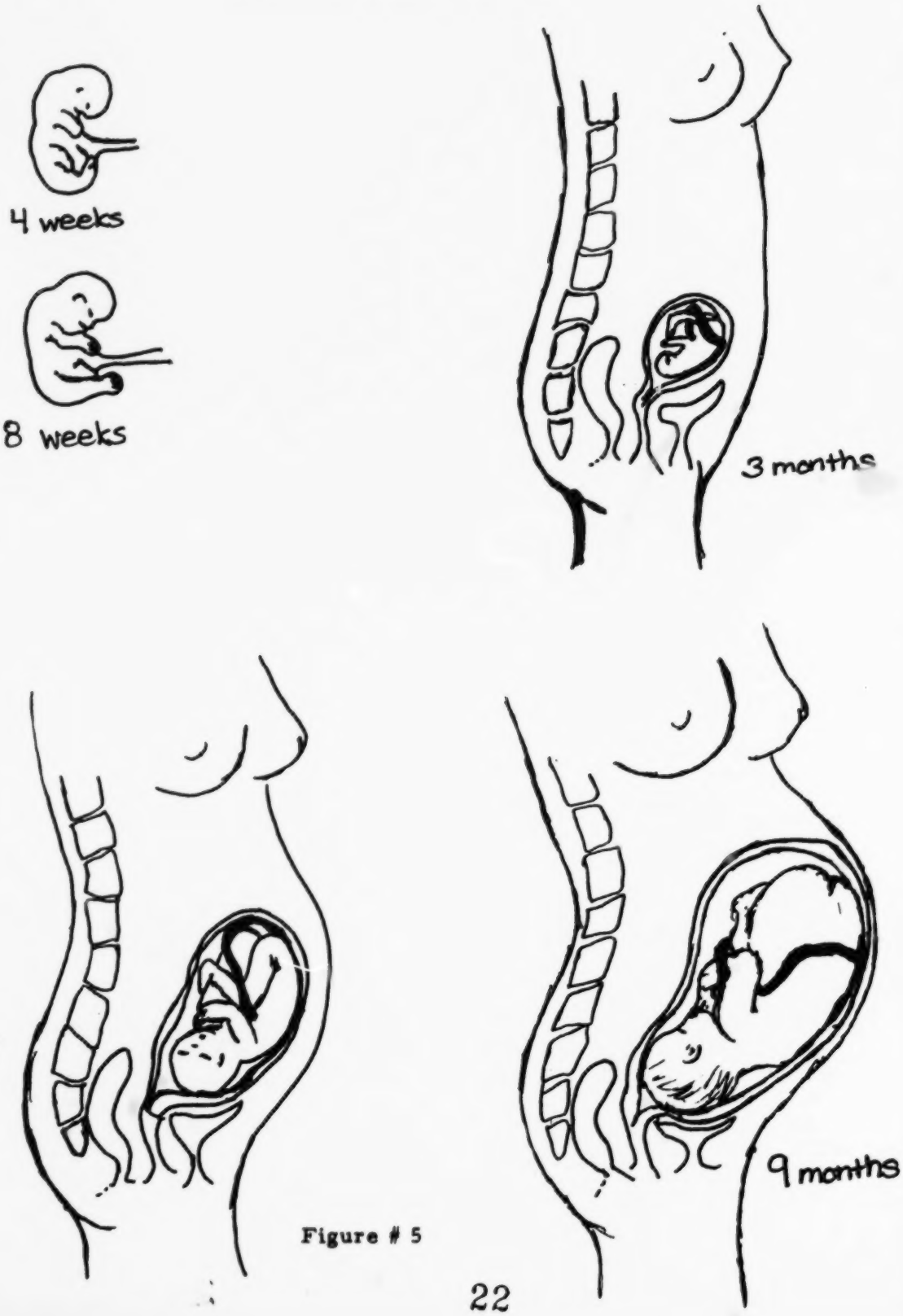


Figure # 5

C. Third Trimester (24th to 40th week)

1. Growth of the Fetus

During the last trimester, the fetus develops subcutaneous fat and gains strength to enable him to survive in the outside world.

2. Physical Changes

a. The movements of the fetus are more pronounced.

b. The fetus is pushing a great deal against the bladder and the urge to urinate increases.

c. There may be shortness of breath due to pressure of the uterus on the diaphragm and lungs.

d. The changes in circulation may cause varicose veins and hemorroids

e. The navel pushes out.

f. Backaches are common due to the changes in posture to compensate for the heavier uterus.

3. Emotional Changes

During the last three months of pregnancy, aside from many physical alterations, the expectant mother goes through a series of emotional changes: she may become tired of being pregnant, she may feel huge and unattractive and cry easily. As the due date comes close, she will probably regain her enthusiasm and look forward to the birth.

D. Placenta

As soon as the fertilized egg implants itself in the uterus, the placenta begins to form. It forms in the internal layer of the uterus and is connected to the fetus by the umbilical cord. Its purpose is to nourish and bring oxygen to the growing fetus and also to remove fetal wastes. The nutrients are carried through the mother's circulatory system to the uterus. They then pass through the placenta to the umbilical cord and the fetus.

E. Amniotic Fluid

During its formation the fetus is surrounded by a membrane filled with amniotic fluid. This "bag of waters" provides a cushiony environment which protects the fetus from noise, injury, and infection until birth.

COMFORT DURING PREGNANCY

Although pregnancy is a normal physiological event, there is no doubt that there are discomforts associate with it. For the majority of these symptoms there are simple comfort measures. Showing the mothers some of these will increase their feelings of well-being during the pregnancy and prevent them from purchasing costly, and often unnecessary medicines. Although only the most common complaints are dealt with here, others could be mentioned in this section.

A. A mother with proper posture will find that there are many benefits, such as:

1. Adequate respiration
2. Backache relief
3. Reduced bladder pressure
4. Less fatigue
5. Better appearance
6. Tighter abdominal muscles

If you remind a mother that the crown of her head should be the highest part of her body, the rest of her body will line up as indicated in Figure # 6. Because this is difficult to determine on oneself, it is important to check each mother individually and perhaps have mothers check each other.

B. Another effective means of insuring the maximum amount of comfort during pregnancy is to change activities frequently during the day because it:

1. Improves circulation
2. Reduces constipation
3. Increased energy
4. Alleviates groin pain
5. Reduces fatigue

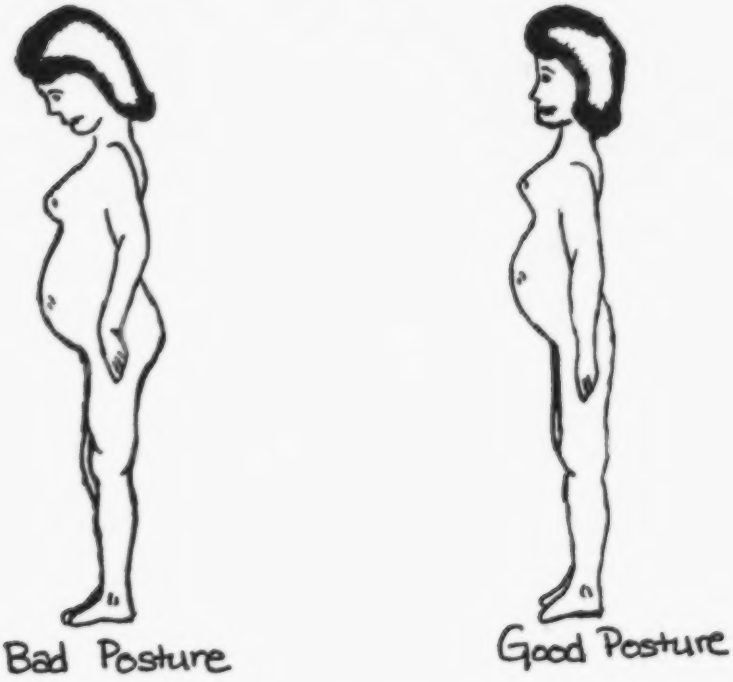


Figure # 6

C. Although expectant mothers do change activities during the day, it is good to remind them of specific things to do, such as:

1. Sitting or lying down with legs elevated for 10 minutes several times a day.

2. Taking walks of at least 30 minutes once a day.

3. Getting at least 8 hours of sleep each night.

4. Making love.

D. Before teaching the pelvic floor exercise, review its location and function. Explain the value of exercising this muscle group during the pregnancy to insure good muscle tone, adequate stretching during delivery, and a rapid return to pre-pregnant condition. There are several ways of exercising the pelvic floor:

1. Stop flow of urine--count to 3--release it, 2 or 3 times in succession.

2. With vaginal muscles, squeeze penis of partner during intercourse.

3. Sitting, standing or lying

a. Tighten urethra
b. Tighten vagina
c. Tighten rectum
d. Hold, count to 3
e. Release
f. Do 2 or 3 times in succession several times a day.

E. During pregnancy, many women experience lower back pain caused by the growing uterus and relaxing pelvic bone joints. As mentioned before, checking for the proper posture and changing activities regularly will give some relief. Wearing lowheeled shoes keeps the body in better alignment than high-heeled shoes do. Also, remembering to squat to pick up things is better for the lower back than bending at the waist is. A good exercise to teach mothers for the relief of lower back pain is the pelvic rock. Be sure to demonstrate the exercise first before asking mothers to do it. (Figure # 7)

1. Lying on back with knees bent.

2. "Rock" away hollow in back, tightening abdomen.

3. Relax, arching back.

4. May be done on all fours, too.

Figure # 7 - Pelvic Rock - Kneeling on all Fours

F. All expectant mothers are aware that as their pregnancy advances they must alter their wearing apparel for the sake of comfort and appearance; however, many are unaware that there are certain types of clothes they should avoid. For example, high-heeled shoes are undesirable because they distort a pregnant woman's sense of balance and produce stress causing lower back pain. A bra that is too tight compresses the nipples and one that is too loose provides poor support for the expanding breasts.

Rolled stockings, garters, or rubber bands around the legs restrict circulation and encourage varicose veins.

In discussing this section, you might have the actual items you want to talk about, like a well-designed bra, available for examination. Also, showing mothers how to convert regular clothing into maternity clothes is especially valuable in a situation where there is not much money for purchasing special garments. Above all, encourage mothers to choose loose-fitting, comfortable clothes which will expand to accommodate changing size and shape.

SEX DURING PREGNANCY

Sex during the nine months of pregnancy can be satisfying and fulfilling for both mother and father. Through this special kind of sharing the husband can feel a real involvement in the pregnancy from conception to birth and approach fatherhood with confidence and enthusiasm. It is important to reassure mothers that except for special circumstances, as defined by their doctors, there are no medical reasons to discontinue sexual relations during pregnancy. However, a great deal of sensitivity and honesty are necessary from both partners to make a satisfactory sexual adjustment to the changes of pregnancy. Encourage mothers to talk openly with their mates and not be afraid to experiment.

NUTRITION DURING PREGNANCY

At the first pre-natal class the importance of good nutrition should be discussed. The talk should be simple and the use of visual aids, such as

charts or pictures on a flannel board, really helps to get the message across. Motivate the mothers by explaining the advantages of a well-balanced diet during pregnancy.

A. A Well Balanced Diet. - What are the advantages?

1. Looking and feeling better during pregnancy.
2. Experiencing fewer complications of pregnancy and childbirth.
3. Having better chances of giving birth to a healthy, fullterm infant.

Discuss the increased nutritional needs during pregnancy starting with protein. The protein requirement during pregnancy is from 75 to 100 grams a day - more than a grown man needs and 30% more than a non-pregnant woman requires.

B. Protein.- Why is protein so important?

1. The amino acids (chemical compounds that make up protein) are used to make muscles, bone, teeth, skin, blood, hair and enzymes.
2. They are an absolute necessity for fetal growth.

Often the low-income woman will eat too much starchy food and very little protein-rich food. Stress that it is the quality of food that counts, not just the quantity. There are various ways for her to get protein. Meat, fish, poultry, eggs, dairy products, and cooked soybeans are all "complete" proteins, which means that they contain all the amino acids necessary for growth and maintenance of bodily functions. Many vegetable and carbohydrate foods are "incomplete" proteins because they lack one or more of the essential amino acids. These amino acids

must all be present at once to do their job in the body. One cannot eat part of them at one meal and wait unitl later for the rest. What does this mean to the pregnant woman? She can combine inexpensive vegetable and carbohydrate foods with small amounts of complete protein foods to fulfill her increased protein requirement.

Here are some examples:

1. Dried beans or peas with rice
2. Lentils with yogurt
3. Macaroni and cheese
4. Whole grain bread or cereal with milk
5. Beans and whole grain bread
6. Soybeans with corn, rice, or wheat
7. Carve (texturized soy protein) with rice
8. Corn arepa with cheese
9. Meat with beans, lentils, rice or pasta

Remember that a small amount of meat can go a long way when combined with these "incomplete" proteins. Also, the cheapest, toughest cuts of meat have as much protein as the tender expensive cuts do. Organ meats - liver, heart, kidney, tripe and brains - are excellent sources of protein as well as vitamins and minerals.

C. Fluids.- Why is fluid important for the pregnant woman?

1. It aids in circulation of blood and body fluids.
2. It stimulates in digestion and assimilation of food.
3. It helps prevent constipation.
4. It helps to increase perspiration

Whether an expectant mother is thirsty or not, she should attempt to drink six to eight glasses of fluid a day. Although the fluid may be water,

drinking milk and juices is a good way to get important vitamins and minerals into the diet. Conservative amounts of tea and coffee can help make up the desirable quantity, too. Alcohol should be used sparingly because excessive amounts consumed by pregnant women can cause congenital abnormalities in the fetus.

D. Vitamins and Minerals

The pregnant woman also needs increased daily amounts of vitamins and minerals. The following chart illustrates the functions of these nutrients and some common food sources. Making a large poster of this chart, for display, can stimulate discussion. Pick either a nutrient or function and ask mothers how they could get the food sources into their diets. A good idea at this class is to pass around a tray with small pieces of various raw fruits and vegetables on it for the mothers to nibble during class; they will probably discover that they taste better than they expected.

SUMMARY OF MAJOR FUNCTIONS AND SOURCES OF VITAMINS AND MINERALS

Vitamin or Mineral	Function	Source
Iron	Maintain hemoglobin level of mother Maintain mother's stores of iron Furnish iron for fetal development Furnish infant with iron stores needed for blood formation during neonatal period before food sources of iron are added	Organ meats Oysters, clams Dried fruits Prune juice Canned dried beans Lean pork and beef
Calcium	Forms skeletal structures of fetus Production of breast milk Blood coagulation, neouromuscular irritability and muscle contractility	Dairy products-milk, cheese, ice cream, yogurt, buttermilk (kumis) Canned fish-including bones Dark green, leafy vegetables
Vitamin A	Necessary for teeth formation Necessary for normal bone growth Necessary for healthy skin Necessary for vision	Butter Egg yolk Kidney, liver Whole milk, cream Dark green and deep yellow fruits and vegetables Tomate de árbol
Vitamin C	Production of substances necessary for development and maintenance of normal connective tissue in bones, cartilage, and muscles Improves health of bones and teeth Increases absorption of iron	Citrus fruits or juice Broccoli, brussels sprouts Cantaloupe Greens Peppers

Vitamin or Mineral	Function	Source
Vitamin D	Promotes absorption and retention of calcium and phosphorus necessary for growth and formation of teeth and bones	Butter Egg yolks Fish oils Liver
Vitamin B complex	Metabolism of amino acids and carbohydrates Nervous system health Translates sources of energy into usable form Normal appetite and digestion	Organ meats Dairy products Nuts Whole grain breads and cereals Oranges

A simple approach to teaching women how to get enough of these nutrients is to introduce the concept of the Four Basic Food Groups in a chart like the one below which emphasizes the different nutritional requirements of pregnancy. The mothers could plan a menu for one day, perhaps listed on a blackboard, which includes the basic food groups. The menu plan should include servings of one citrus fruit a day, one dark green, leafy vegetable and one yellow vegetable every other day. Also, emphasize the importance of dairy products which contain calcium and phosphorus which help the fetus make strong bones and teeth. The best sources are milk, cheese, ice cream, yogurt, and buttermilk (kumis). Since it is often difficult for the rural woman to get and preserve fresh milk, suggest buying a can or box of powdered milk and rationing it out a few tablespoons a day in any way she likes. It would be best if she ate or drank the milk products with meals so that the protein of the milk could be combined with any incomplete protein in the meal to make a complete protein.

You may want to give the food groups descriptive names such as: The Bone-Builders for the milk group; The Body-Builders for the meat group; The Protectors for the fruit and vegetable group; and the Energy-Givers for the grain.

Also remember that expectant mothers under 18 years have a higher nutrient requirement because they are still growing themselves. It is wise to advise them to get extra amounts of all the food groups.

FOOD GROUP	BEFORE PREGNANCY	PREGNANCY	NURSING
Milk or Milk Products	2 cups	4 cups	4 cups
Lean Meat, Poultry, Fish	2 servings	3 servings	3 servings
Fruit, Vegetables	2 servings vegetables 2 or more servings fruit	2 servings vegetables 2 or more servings fruit	2 servings vegetables 2 or more servings fruit
Grain	4 servings	4 servings	4 servings

Chart of Basic Four Food Groups showing minimum requirements before pregnancy, during pregnancy and while nursing a baby.

PART 2

PART II

SECOND PRENATAL CLASS

REVIEW

As the mothers come into class, go around and talk with each one individually. Check her posture and review the pelvic rock, perhaps showing her how to do it in a standing position. Also ask her if she is having any particular discomforts and give her suggestions for dealing with them. (See Appendix B.)

LABOR

Although an expectant mother knows that she will go into labor at one point and deliver her baby at another, she is often unaware of the physical mechanisms involved. Therefore, it is important to educate the mother to be able to recognize and evaluate the physical signposts on the road to her child's birth. Not only will she be of assistance to medical personnel, but she will also be confident of her ability to understand what is happening in her own body.

SIGNS OF APPROACHING LABOR

Before labor begins, there are several signs by which the expectant mother knows that the birth of her baby is close at hand.

A. Lightening

It occurs when the presenting part of the baby descends into the pelvis. The mother finds it easier to breath and often heartburn is relieved. How-

ever, there is often a corresponding increase in lower back and bladder pressure. Usually, in first time mothers (primigravidas or primiparas) this occurs from 2 - 4 weeks before the onset of labor, but much closer to the time of delivery for mothers who have already had a child (multigravidas or multiparas).

B. Braxton-Hicks Contractions

The painless tightening and relaxing of the abdomen which have been happening on and off during the latter part of pregnancy, occur at more frequent intervals shortly before labor begins. At times, they even seem to have a pattern which makes the mother suspect that labor has begun.

C. Weight Loss

There is often a weight loss of 2 - 3 pounds in the final week before labor begins.

D. Energy Spurt

Many women experience a sudden burst of energy one or two days before labor starts. They must be careful not to overdue and become exhausted.

E. Vaginal Discharge

Increased vaginal discharge is common for several weeks before the onset of labor.

F. Mucous Plug

The ball of blood-tinged mucous with white particles in it which forms in the tiny entrance in the cervix during pregnancy to prevent bacteria from entering into the uterine cavity, may be lost as the cervix starts to soften and dilate.

Often a mother is uncertain as to whether true labor has begun or if she is only experiencing false labor. The following chart can help her evaluate what she is feeling.

TRUE CONTRACTIONS	FALSE CONTRACTIONS
1. Occur at regular intervals	1. Occur at irregular intervals
2. Intervals gradually shorten	2. Interval remain long
3. Intensity gradually increases	3. Intensity remains the same
4. Mainly located in back	4. Mainly located in the abdomen
5. Intensified by walking	5. Walking or changing activity often gives relief
6. Outcome: baby!	6. Outcome: no baby yet

Remind mothers that this is only a rough guide and that a woman may be in real labor without many of the typical accompanying signs. If a woman has any doubts, she should have a qualified health worker do a check for cervical dilitation because this is the only accurate way to determine if labor has truly begun.

MECHANISM OF LABOR

Before explaining the mechanism of labor, it should be emphasized that for every woman labor is slightly different. An expectant mother should not expect to have the same experience as her friends have had or even the same as she herself had in a previous pregnancy.

Labor is technically divided into three parts:

A. First Stage. This is considered to be the part of labor during which the cervix opens up.

B. Second Stage. This begins at the moment the cervix is fully open and ends with the birth of the baby.

C. Third Stage. This starts immediately after delivery and concludes when the afterbirth is expelled.

This section is devoted to the First Stage of Labor because of its relatively long duration and complexity. The Second and Third Stages are explained in detail in Part III.

FIRST STAGE OF LABOR

The First Stage of Labor begins with the onset of true labor and ends with the complete thinning (effacement) and opening (dilitation) of the cervix. During this stage, by means of regular contractions, the uterus shortens and opens the cervix. If a mother understands this process, she may be better able to appreciate that each contraction brings the birth of her baby a bit closer.

When true labor begins, the cervix is just a tiny opening, although in women who have had several babies it may be slightly open before the onset of labor. During labor, the cervix must open to 10 centimeters (about 4 inches) to allow the baby to pass through. The following diagram shows the dilitation of the cervix at various points during the First Stage of Labor (Figure # 9).

The First Stage of Labor is divided into three phases: (Figure # 10)

A. Early Labor is defined as the phase from the onset of true labor until 5 centimeters of dilitation. This is usually the longest phase but the least uncomfortable. Many mothers are able to remain calm and relaxed at home.

B. Active Labor can be thought of as the phase from 5 centimeters to 8 centimeters of dilitation. The length of this phase is usually shorter than that of Early Labor, but the contractions are typically more intense, closer together, and longer. At this point, mothers must devote their entire attention to staying in control of the contraction.

CERVICAL DILITATION IN CENTIMERS (ACTUAL SIZE)

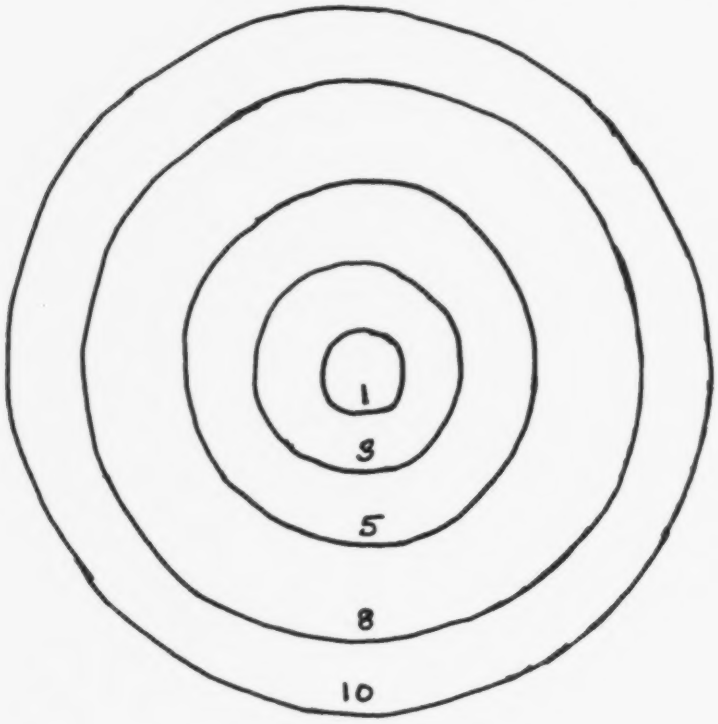


Figure # 9

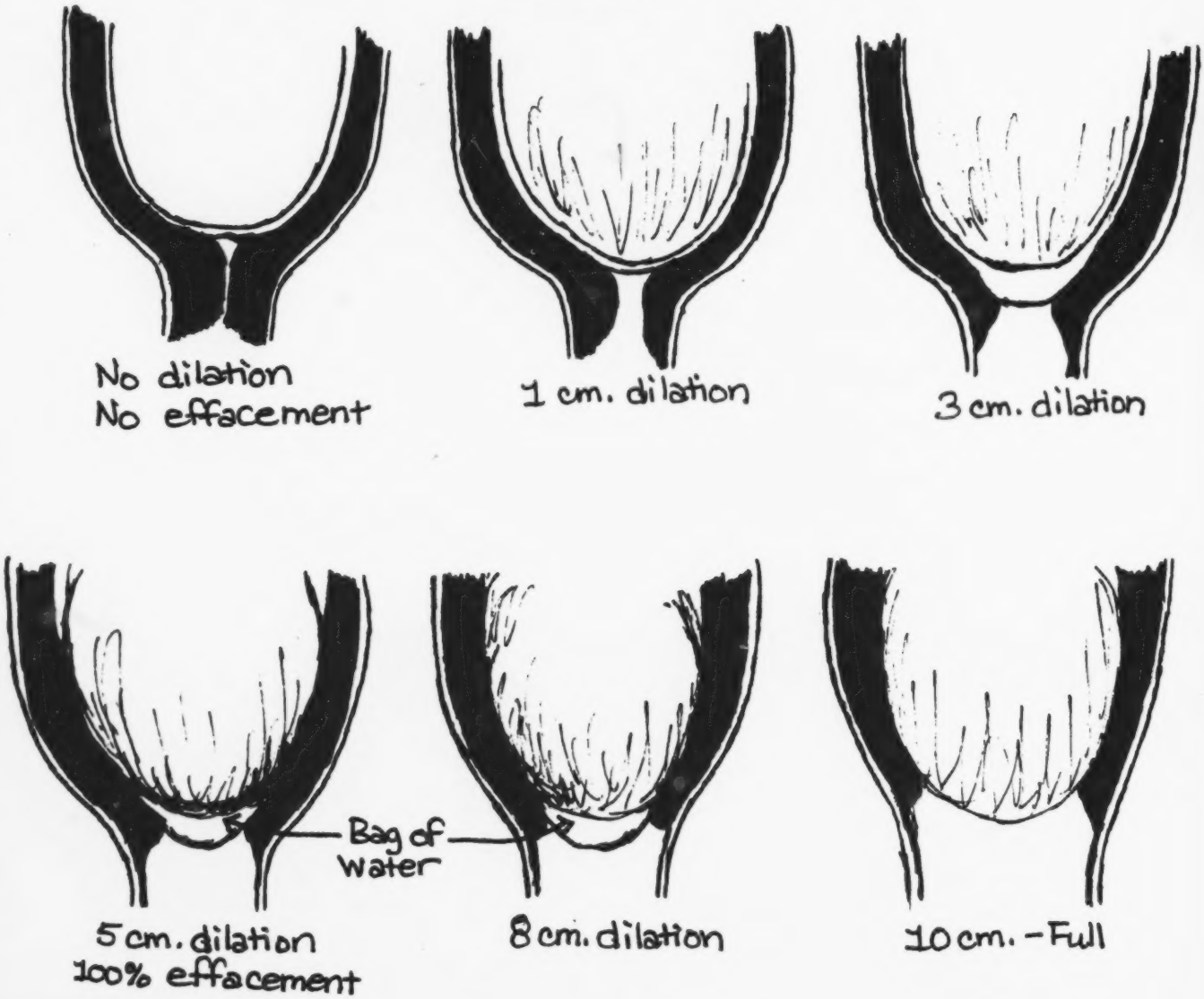
C. Transition Labor is often the hardest part of the labor, but it is also the shortest. It begins when the cervix has reached 8 centimeters and ends with the full 10 centimeters of dilitation. The contraction pattern becomes more intensified in all ways and mothers often doubt their ability to cope with this phase. Many women experience nausea and vomiting, hot and cold flashes, trembling of the extremities, a premature urge to push, and other distracting symptoms.

Along with effacement and dilitation of the cervix, several other things may happen during the first stage of labor. If the mucous plug hasn't already been released prior to the beginning of labor, it may be expelled during a uterine contraction. At some point during labor the presenting part of the fetus settles into the base of the pelvis if it has not done so already. This action is called "engagement".

The amniotic sac (bag of water), which has provided a protective environment for the baby throughout the pregnancy, usually breaks spontaneously during labor, but may be broken by the doctor or nurse during labor or delivery. Whenever the amniotic sac ruptures, the mother should have a skilled medical person check to see if the fluid is clear and to listen to the fetal heart beat.

THE DILATING CERVIX

Figure # 10



RELAXATION DURING LABOR

It is impossible to overestimate the role of relaxation in childbirth. The woman who is relaxed during a uterine contraction has a relaxed cervix and allows her body to work unimpeded to deliver her baby. By working with the strong, natural actions of her body, she reduces the discomfort she feels and conserves her energy. Teaching the effect of tension on the progress of labor is easy, especially if you use one fist as the baby's head and the other hand as the cervix to demonstrate the effect of tension and the lack of it on the opening cervix. Teaching another person how to relax is more difficult because it necessitates a certain amount of body awareness in the person being taught. However, there are several simple exercises for bringing about a state of relaxation that can be learned quickly. With mothers in a relaxed sitting or lying position, as shown in Figures # 11 and # 12, have them tightened and relax muscle groups on command, noticing the difference in sensation. Before expecting mothers in the class to do this exercise, demonstrate it with an assistant or willing volunteer. The sequence of steps is the following:

1. One arm, then the other
2. One leg, then the other
3. One side, then the other
4. Abdominal muscles
5. Pelvic floor muscles

RELAXED LYING POSITION

Figure # 11

RELAXED SITTING POSITION

Figure # 12

BREATHING DURING LABOR

During a labor contraction, deep rhythmic breathing is an excellent relaxation aid. In addition to maintaining a good CO^2-O^2 gas balance to prevent hyperventilation, it conserves energy in the body. Teaching it is relatively simple because it is just the conscious use natural relaxed breathing. To demonstrate this have the mothers put their hands on their abdomens, feeling it rise and fall as they breathe naturally. Do the same thing again, but ask the mothers to count their breaths as you time a one minute contraction. They should have 6 to 10 breaths in 60 seconds. Reinforce these ideas by writing on a blackboard or poster that conscious efforts at relaxation and deep breathing are powerful tools for controlling the intensity of a contraction. The following diagram of the breathing pattern during a contraction could also be displayed to emphasize the concept of controlled breathing during a contraction. (Figure #13.)

DEEP BREATHING DURING A CONTRACTION

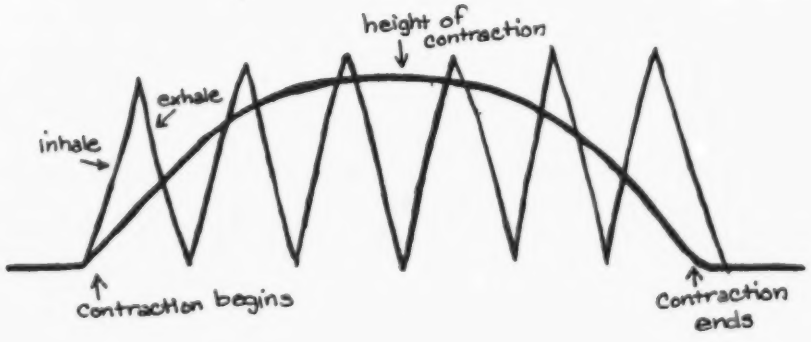


Figure # 13

At times during labor, especially transition, a mother must refrain from pushing with a contraction even though she feels like it. A woman must be taught to keep from pushing in this circumstance since she must consciously contradict a natural urge. Again using the hands, demonstrate how premature pushing, that is before the cervix is fully dilated, can cause swelling or even tearing of the cervix. Explain and demonstrate that by blowing out forcibly, and thus keeping the abdomen vibrating, a mother cannot push. This blowing action is similar to that of blowing out a candle. Ask mothers to imitate your action with their own bodies. When you feel confident that the mothers know how to keep their diaphragms fluttering, apply the action to a simulated contraction. While the mothers are making conscious efforts to do the deep breathing learned earlier, give the command "Stop Pushing!" and observe how well the mothers shift to the energic blowing out necessary to control a premature urge to push.(See figure # 14).

DEEP BREATHING WITH "STOP PUSHING" COMMAND

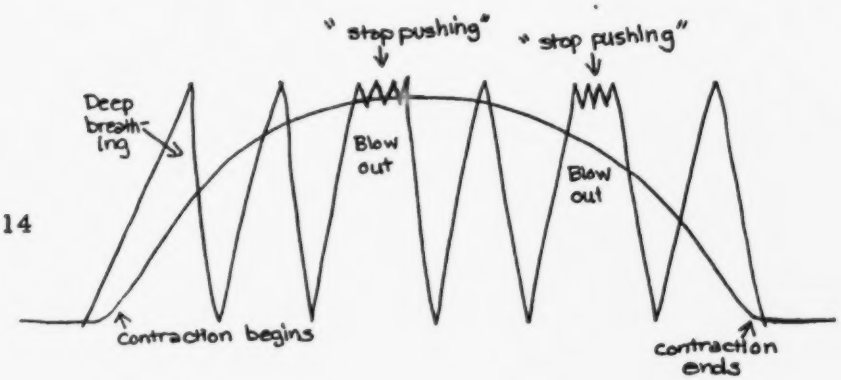


Figure # 14

BREASTFEEDING

Although many mothers in developing countries and lower socio-economic levels choose to breastfeed because it is less costly than artificial feeding, they are sometimes not aware of other significant reasons to establish and maintain the breastfeeding relationship until their infant can take table food. Therefore, it is important to discuss these values.

ADVANTAGES OF BREASTFEEDING

A. NUTRITION.- Breast milk contains all the nutrients a human infant needs in a form that is readily absorbed.

B. INFECTION PROTECTION.- Mother's milk has in it a wide range of protective substances to reduce vulnerability to respiratory and intestinal infections.

C. ANTIALLERGIC EFFECT.- Total breastfeeding until 4 to 6 months of age is the best protection against allergy in infancy.

D. CHILD SPACING.- Nursing on demand day and night without offering formula or solid foods can be an effective contraceptive.

E. MOTHER-BABY INTERACTION.- Close contact between mother and baby, especially in the early months, helps develop emotional ties.

NIPPLE PREPARATION

For some mothers, especially those with fair hair and skin, sore nipples during the early days of nursing is a real problem and occasionally a reason to discontinue breastfeeding. Encouraging all pregnant mothers to do nipple preparation to reduce the possibility of this problem is very important. Explain that the following measures take very little time and can easily be incorporated into a regular hygiene program.

A. Rub nipples gently with a terrycloth towel after bathing.

B. Pull out nipples firmly several times when dressing.

C. Apply some kind of lubricant, like baby oil or vitamin E to nipples daily.

VALUE OF EARLY NURSING

Many mothers feel that colostrum, the thick yellow substance that is in the breasts for several days after delivery, has no value for the baby and so do not attempt to nurse until the "true" milk comes in. However, just the opposite is true and to deprive the newborn of colostrum is to deny him the following advantages:

1. Antibiotic protection against many common diseases and microorganisms.
2. A laxative to help eliminate the meconium stool (baby's first bowel movement).
3. Special nutritients for maximum welfare of newborn.
4. High protein content for optimal development.

Therefore, encourage your mothers to nurse their babies frequently and as soon after delivery as possible. Also, since the infants sucking releases a hormone (oxytocin) in the mothers body, which causes the uterus to contract, early breastfeeding encourages the rapid return of the uterus to it pre-pregnant condition.

PART 3

PART III

THIRD PRENATAL CLASS

REVIEW

Spend 5 to 10 minutes at the beginning of class checking each mother individually to see how well she is relaxing; give a few commands for her to respond to and observe her deep breathing technique. Tell her to "Stop Pushing!" during one practice contraction and be sure to praise her efforts. A brief review of the signs of labor and the values of breastfeeding should get the class off to a pleasant start.

When a woman enters the hospital or clinic in labor, she feels a certain amount of anxiety even if she has already had a baby. If she has the opportunity to visit the maternity ward before labor begins, she will be less disturbed when she arrives there in labor. Perhaps at the end of this class session the mothers who have not delivered there before could see the labor and delivery room equipment. It is important to explain the items clearly and simply, being sure to allow enough time to answer any questions thoroughly.

SECOND STAGE OF LABOR

What a woman experiences during the Second Stage of Labor, that is from the time the cervix is dilated to 10 cms. until the baby is born, is usually quite different from what she feels during the First Stage of Labor. After

coping with contractions for hours with few observable results, she is usually happy to be able to contribute actively to the birth of her baby. She no longer has to control a premature urge to push and knows that with her bearing down efforts her baby will be born. Although this stage can be an exciting time, it can also be a scary one for the woman who isn't aware of what is happening. To avoid confusion on the part of the laboring woman, it is important that she knows beforehand what is going on in her body. In addition, she must pay attention to what her coach in delivery tells her.

A. Descent Through the Birth Canal

As soon as the cervix is fully dilated, the baby begins its journey through the birth canal, or vagina, to the outside. The power for this movement is provided by the contracting uterus, the diaphragm, and the abdominal and respiratory muscles of the mother. With each contraction the baby's head moves down and then recedes a small amount as the contraction passes, but not back to where it was when the contraction began. Finally, after about a half an hour of pushing, depending on the parity of the mother, part of the baby's head is visible at the entrance of the birth canal (Figure # 15A). Usually, a mother will be moved to the delivery room at this time.

B. Delivery

Once on the delivery table, the mother's pushing produces the top of the baby's head, which is called crowning (Figure #15B). The mother continues to push until the entire head is delivered (Figure #15C). She will then be told to stop pushing. When the mother has stopped pushing, the attendant can check to see if the umbilical cord is around the baby's neck. If so, she unwinds the cord and the delivery continues. The shoulders emerge next, first one and then the other. Finally, the medical attendant slowly eases the rest of the body out of the birth canal and the baby is born! (Figure # 15D).

45

SECOND STAGE OF LABOR

Figure # 15-A

Figure # 15-B

Figure # 15-C

Figure # 15-D

C. After Delivery

The newly born infant is placed on a nearby table in a slanting position to allow fluids in the respiratory passages to escape without choking him. Sometimes a rubber or plastic catheter, connected to a suction machine, is placed in his mouth or nose to remove any remaining secretions. When the umbilical cord is empty of blood, it is clamped in two places and cut between the clamps. It is then tied with a sterile cord near the infants abdomen to prevent bleeding. Finally, the baby is dried, weighed, measured and dressed. Usually, Gantrisin or silver nitrate drops are put in the baby's eyes to prevent infection which he may have picked up coming through the birth canal. The newborn is then placed in a warm place until the third stage of labor is completed and he can rejoin his mother.

D. Delivery Room Experience

Because there are a number of disturbing things than can happen in the delivery room,the following procedures should be described to expectant mothers.

1. She will be moved from the labor room to the delivery room on a stretcher and then helped onto the delivery table, which is a flat bed with metal stirrups for her knees or feet to rest in. There may be handles for the mother to grasp in order to help her push more effectively. Her hands and legs may be strapped down. Some delivery tables are adjustable and the mother may be put in a semi-sitting position to facilitate pushing. Mothers should be encouraged to cooperate in finding the most comfortable position in which to deliver.

2. The perineal area is usually washed with a sterile solution. Warn mothers that the solution is often cold and comes as a shock if not anticipated.

3. The health worker may put on a sterile gown, gloves, cap to cover the hair and a face mask. The mother should be reassured that the same caring person is underneath the strange costume.

4. Sterile drapes are sometimes used to cover the legs and abdomen of the woman, during delivery.

5. It is sometimes necessary to make a small cut in the vaginal opening to prevent tearing during delivery. This is often a routine procedure in primigravidas. This incision is called an episiotomy and is a painless procedure done just before the baby's head is born. Following the delivery of the placenta, this incision is repaired by suturing after an injection has been given in the vagina to desensitize the area. Mothers should be reminded that only they know if they are experiencing pain and should not hesitate to let the doctor or nurse know. The material used for suturing is usually the type that is absorbed into the skin, so that there is no need to return to the hospital or clinic at a later time to have the stitches removed. Any woman who has had the stitches must pay special attention to her perineal care (see section on Immediate Postpartum).

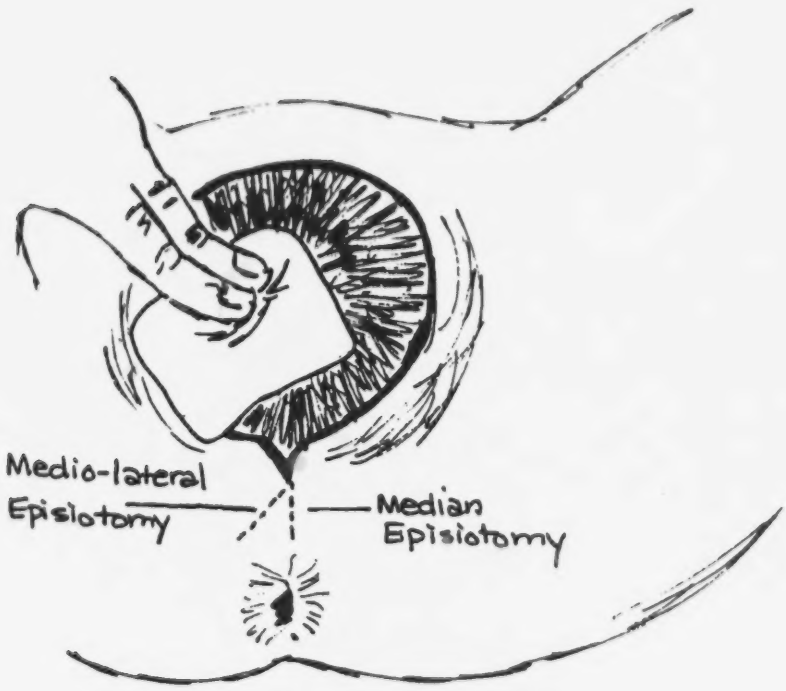


Figure # 16 Episiotomy

HOW TO PUSH EFFECTIVELY

Although the contracting uterus provides 50% of the force necessary to expel the baby, the other 50% is provided by the conscious bearing down efforts of the mother. The majority of unmedicated mothers feel a pushing urge but may have difficulty working positively with this reflex. Therefore, it is important to teach mothers how to push effectively with the strength of each contraction. The breathing technique and position for the pushing should be taught separately and then coordinated once they have been mastered. As with all the other skills, the activities should be demonstrated before the mothers attempt them themselves.

A. Breathing for Expulsion (see Figure # 17)

1. Take two deep breaths as the contraction begins, allowing it to build.
2. Hold third breath, setting the diaphragm and blocking the air at the back of the throat.
3. Take catch breath as needed (approximately every 10 to 15 seconds), by extending the neck, until the contraction ends.
4. Take 2 more deep breaths

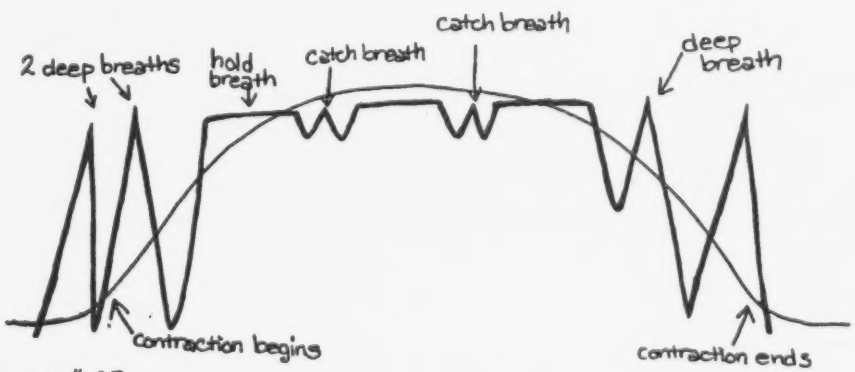


Figure # 17

Breathing Pattern for Expulsion

B. Position for Expulsion (Figure # 18)

1. On the third breath, rise into 35 degree angle, rounding back, grasping thighs or ankles.
2. Push by setting diaphragm and contracting abdominal muscles.
3. Perineum, face, legs, feet, etc. should be as relaxed as possible.
4. When the contraction ends, lie back and relax entire body.

Ideal Position for Expulsion

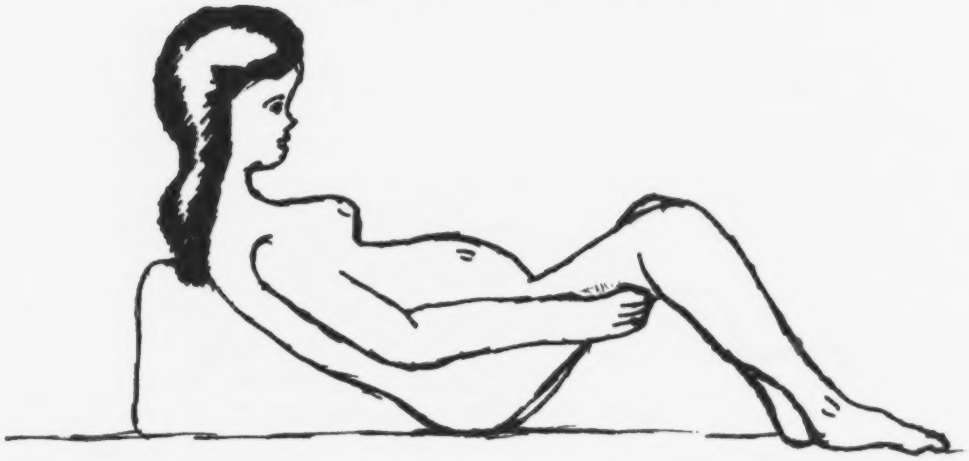


Figure #18

C. Coordinate breathing and position to uterine contraction.

THIRD STAGE OF LABOR

A mother must often be reminded that, although the baby has been born, the delivery is not yet over: the placenta has to be delivered. Although the mother will feel slight contractions as the placenta is separating from the walls of the uterus, there is no great discomfort. From 10 to 15 minutes after the birth of the baby, the placenta has completely separated. And the attendant will ask her to help push it out. Many mothers are curious about

the placenta and should be reminded to ask the medical personnel to show it to them and describe its function. The delivery is now over, but the following procedures should be explained to the mother when applicable:

A. If there is a laceration or an episiotomy, it will then be sutured or stitched. Usually a local anesthetic will be given for this brief procedure if none was given previously.

B. The mother may receive an injection of oxytocin to make the uterus contract, thus preventing excessive bleeding. Breastfeeding immediately after birth will also have this effect.

ADMISSION TO HOSPITAL

A. Onset of Labor

Mothers should be instructed to come to the hospital or clinic when contractions are coming at regular intervals, fairly close together. Also, they should come if the bag of water ruptures, if they notice any bright red blood, or if they have severe backache or visual disturbances. (See section on Danger Signs).

B. What to Take to the Hospital

What to bring to the hospital is always a question mothers have during their pregnancies. They should be notified of what they will need in advance, in order to prepare things ahead of time. A simple check list for the mothers to fill out could be given out at one of the later prenatal classes. The necessities vary with each hospital, but the following list contains the things that are routinely required:

1. For the mother:

2 or 3 nightgowns
sanitary napkins
slippers
well-fitting bra
toothbrush and toothpaste
soap
toiltet paper
extra pair of underwear

2. For the baby:

   2 warm blankets
   6-12 diapers depending on length of stay
   2 or 3 undershirts
   2 or 3 sweaters

C. Hospital Procedures

Most hospitals have the following routine preparation of the patient upon admission.

1. An interview to determine the time of the actual onset of labor, whether the membranes have ruptured, how often contractions are coming and for how long, parity of the mother, and special circumstances or problems during previous pregnancies and childbriths is conducted.

2. A health worker will perform the following exam:

   a. an external examination to determine the position of the fetus, the fetal heart rate, mother's blood pressure, temperature and pulse, uterine height and presence of edema; and

   b. an internal pelvic exam by the doctor or nurse who inserts 2 fingers into the vagina (or this may be done through the rectum), to determine degree of effacement and dilatation of the cervix, to ascertain the position of the fetus, and to confirm the presence or absence of the membranes.

3. A perineal prep, which means that the pubic area, or part of the pubic area, will be shaved. This insures a more hygienic delivery, preventing post-partal infection, and guards against unnecessary irritation if suturing is required after delivery.

4. Most mothers receive an enema or emptying of the lower bowel upon admission. An enema may speed up the progress of labor and facilitate a comfortable delivery.

DANGER SIGNS

Although the great majority of pregnancies and deliveries are normal, especially in women who receive prenatal care, mothers should be aware of the following danger signs so that if they should occur, they will know to seek immediate medical attention. The mothers need not to be given all of this information in class because they may become overly anxious over something that in all probability will not happen; the basic signs are sufficient. We have gone into some detail so that health worker is aware of these symptoms of abnormalities and the importance of medical aid.

A. Toxemia

The causes of toxemia are still not completely understood. It occurs more often in young mothers (16 years and under), older women, and women in their first pregnancies. Women with physical problems such as diabetes, hypertension, and kidney diseases are more susceptible. The disease takes two forms:

1. Pre-eclampsia, the first stage of this disorder, usually begins between the 20th and 24th week of pregnancy. Symptoms of pre-eclampsia are edema (swelling as a result of water retention), high blood pressure, and protein in the urine. If pre-eclampsia goes untreated, the problem becomes more severe and such symptoms as severe headache, visual disturbance, and epigastric pain may occur. Any of these symptoms requires immediate medical attention.

2. Eclampsia, the most severe stage of toxemia, is characterized by convulsions in the expectant mother. If not immediately treated, eclampsia may progress to coma and even death.

B. Abnormal Bleeding

A small amount of bloody discharge combined with some mucous is often present during labor and is not a cause for concern. However, mothers should be aware that a bright red flow of blood is abnormal during pregnancy and should be reported to the physician. There are two principle causes of third trimester bleeding.

1. Abruptio Placentae, a situation in which the placenta separates prematurely from the uterine wall, may be mild or severe depending on the degree of separation. It is characterized by a tender and slightly contracted uterus and painful bleeding.

2. Placenta Previa is a condition in which the placenta implants itself low in the uterus and may partially or completely cover the cervix. It is characterized by painless bleeding which may be scant or profuse.

Both of these hemorragic conditions present a danger to the mother and consequently to the baby, and should receive immediate medical attention.

C. Unclear Amniotic Fluid

Mothers should be instructed to observe the color and odor of the amniotic fluid if the rupture of the membranes takes place when there is no health worker present. There are two dangerous variations:

1. Meconium Stained Fluid. The first intestinal evacuation of the newborn is called "emconium" and is a sticky, dark green or black substance and appears soon after birth. If however, the baby is in some type of distress during labor, it may release this meconium prematurely. This presents a danger for two reasons: first, it the meconium is expelled before birth, the baby has had some kind of trauma; second, if the baby swallows some of the amniotic fluid during the birth process, which is normal, the meconium may later cause infection in the baby's lungs.

   An important exception to this warning is when meconium stained fluid is observed when the baby is definitely in a breech position. In this circumstance it is not a danger sign.

2. Infected Amniotic Fluid. When the amniotic fluid has an unusual or foul odor, it may mean that it is infected and should be reported to a medical person immediately.

PART 4

PART IV

FOURTH PRENATAL CLASS

THE NEWBORN

An expectant mother, especially if pregnant for the first time, should be taught how a newborn baby looks and how to care for him. It should make the transition to motherhood easier if she knows what to expect. This information could be taught in the last prenatal class and then reviewed in the hospital sometime after delivery when the mother is rested up. Taking a few minutes to talk to her about her newborn will probably mean a great deal to her. Encourage her to ask questions--remember, something that is obvious to you may not be obvious to a first-time mother.

APPEARANCE

Some of the subjects that should be discussed about appearance are the following:

A. Molding of the head. The baby's head may have an elongated egg shape due to the pushing he received in the birth canal. Since the bones in a newborn's head are flexible, this molding is temporary and the normal shape returns within one month.

B. Vernix. The infant is often covered with a white creamy substance called vernix which protected his delicate skin and doesn't need to be washed off. After the baby's warm skin "melts" the vernix, it is absorbed into his skin.

C. Blue fingers and toes. Babies immediately after birth are often slightly blue (cyanotic), especially the hands and feet and the lips. Reassure the mother that he will soon turn pink after breathing a few minutes and warming up in a blanket.

D. Swollen genitals. The baby's breasts and genitals may be swollen due to hormones from the mother's bloodstream that have passed to him. The swelling will disappear within a few days.

The woman should have the chance to see and touch her newborn as soon after birth as possible. This helps to form very positive "bonds" between mother and child. Bring the blanketed baby up close to the mother's face so she can look at him closely, touch him, really get to know her child. As soon as she is able, let the mother hold and cuddle the baby herself. Remember, the sooner she handles the baby and fully accepts him as her own, the sooner and easier she will accept herself in the role of mother of a newborn infant.

CARE

Ideally, the new mother should also have the chance to bath and dress the baby under the supervision of a health worker before she leaves the hospital. This will help to make her feel confident in her ability to care for the baby and may bring out questions and clear up uncertainties. Some subjects you may want to discuss are the following:

A. Handling. The newborn likes to be held firmly yet gently with his head always supported (demonstrate) because his tiny neck is too weak to hold up the relatively heavy head.

B. Care of the umbilical stump. The short stump that remains after the umbilical cord has been cut should dry up and fall off in about a week. This stump is a direct pathway to the baby's circulatory system so care must be taken to prevent infection. It must remain dry at all times;

therefore, diapers should always be fastened well below it. Belly bands retain moisture and should not be used. Several times a day the area around the stump should be dabbed with alcohol or alcohol tinted with iodine. Powders, creams and ointments should never be used since they promote infection. When bathing the newborn, care must be taken not to get the umbilical stump wet. If the mother notices any secretions from the stump or redness around it, she should notify a doctor.

C. Bathing the newborn. For the newborn, a sponge bath in a warm, draft-free room is recommended. Have all the necessary items within reach before starting the bath: small tub full of lukewarm water, washcloth, towel and mild soap. Each area is bathed, rinsed and dried in the following order:

1. Each eye is bathed once with a different part of the cloth in an outward motion, using water but no soap.

2. Taking care not to exert any pressure on the soft spot of the head, bathe head and face.

3. Wash rest of body taking special care to clean the folds in the skin where dirt is most likely to accumulate.

4. The genitals of girls are clearned front to back. Dirt of uncircumcized boys accumulates under the foreskin; therefore the mother should retract the foreskin and gently clean the head of the penis with warm water.

Warn the mother not to put an excessive amount of baby powder or cornstarch as it will accumulate in folds of the baby's skin and be difficult to clean out.

D. Stimulation for newborns. An infant needs interaction and contact with other human beings very soon after birth to begin to develop his mental and emotional capacities. Encourage the mother to play with her baby, talk and laugh with him and cuddle and pet him. An outing in the fresh air in mother's or daddy's arms is nice.

LACTATION

MAINTAINING MILK SUPPLY

Although a mother may be very positive about breastfeeding and be successful during the early postpartum period, she may need suggestions for maintaining an adequate milk supply as her baby demands more. It is important to reassure her that she will be able to meet her baby's needs without incuring great expense or dramatically changing her way of living. Some suggestions you might give her are the following:

A. Drink plenty of fluids. Water is fine but drinking juices or dairy products is a good way of getting needed minerals and vitamins.

B. Get lots of sleep. A rested mother will have a more abundant milk supply and enjoy her baby more.

C. Eat three good meals a day. A well nourished mother makes more milk and is more resistant to illness.

D. Take brewer's yeast or drink beer when you feel you need a little extra help in producing milk.

E. Nurse baby on demand 24 hours a days for 48 hours to increase milk supply.

F. Stay as relaxed and happy as possible so that you can enjoy this brief period in your baby's life.

DIET DURING LACTATION

The breastfeeding mother should eat a high protein diet similar to that recommended during pregnancy but with an additional 500 calories (approx.)

per day. Explain to the mother that it is normal to be hungrier and thirstier during nursing because her body needs more food and fluid to produce milk and at the same time maintain her own body functions and weight. Encourage her to eat nutritious snacks such as milk, yogurt, kumis, cheese, any protein food, fresh fruit or juice or whole grain foods. Refer to the chart on page 23 for the minimum amounts of the four food groups recommended during nursing. Remind the mothers that the extra cost of feeding herself well during nursing will be less than the cost of canned baby formula.

POST-PARTUM EXERCISES

It is highly desireable for the new mother to do exercises as soon after delivery as possible. Not only will she feel better because she is helping her body return to its pre-pregnant condition, but she will also look better. Generally, a newly delivered mother should start with easy, non-strenuous exercises and work into more demanding ones as her strength returns. Encourage mother to develop an exercise program that fit her own physical condition and lifestyle. Remind the mother to check with her doctor or birth attendant before beginning the exercises.

A. Right After Delivery

1. Pelvic floor exercises (learned in class #1, p.14).
2. Pelvic rock on back (learned in class # 1, p. 15).

3. Head lift - While lying flat on back, lift head trying to touch chin to chest; do slowly holding position as long as possible.

Head Lift

4. Abdominal breathing - Breath in slowly through nose so that abdomen rises; then blow out through pursed lips so that stomach tightens and flattens.

5. Lie on stomach with pillow under breasts several times a day.

B. After Two Weeks

1. Pelvic floor exercise.

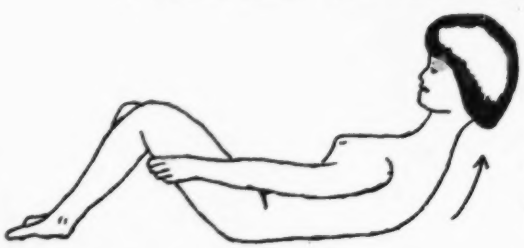
2. Pelvic rock on all fours (class # 1, fig. # 7)

3. Knee roll- Lying on back with knees bent and feet flat, roll knees slowly from side to side keeping shoulders flat.

Knee Roll

4. Back curl - Lying on back with knees bent, feet flat and arms reaching past thighs, do the following:

a) slowly curl head and shoulders upward as you reach past legs;
b) reach arms past right thigh;
c) reach arms past left thigh.

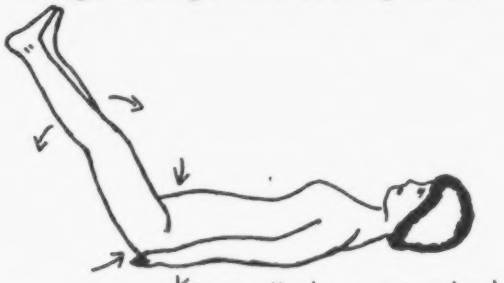


Back Curl

C. After Six Weeks

1. Pelvic floor exercise.

2. Knee roll with legs straight and feet up in the air.



Knee roll- legs extended

3. Sit ups- On back with knees bent and arms at sides, rise slowly into sitting position keeping feet flat.

4. Any other exercise that feels good.

Although the pregnant mother will not be able to do many of these exercises, demonstrate them so that she will understand how to do them after she has her baby. A simple direction sheet, like the one in the appendix,should help remind her how to do the exercises if she is unable to return for a post-natal class.

SEX AFTER PREGNANCY

The length of time a couple must wait after delivery before reestablishing sexual relations varies considerably. If a woman has had stitches or is experiencing a heavy flow of blood, the waiting period may be longer than if she didn't have them. Also, some mothers are not as ready psychologically to be intimate with their mates as soon as others are. Suggest that a mother get a postpartum check before attempting sexual intercourse so that she

will be assured that there is no reason why she shouldn't enjoy the experience. If she is nursing, suggest that she use some lubricating jelly since breastfeeding tends to reduce the amount of vaginal secretions. A position for intercourse with the woman on top will allow her to control the amount of penetration and is especially appropriate for the woman who has had a caesarian birth. Above all, remind the mother (and if possible the father) that the postpartum period is a time of many adjustments and that it may take several months until a satisfactory sexual adjustment is made.

PLANNING FUTURE PREGNANCIES

There are several things that a couple should be aware of before deciding on another pregnancy:

A. The Mother's Health. A woman needs time to recuperate fully after one pregnancy before beginning another. Most authorities recommend waiting at least one year before starting a new pregnancy. This gives the woman's body time to regain muscle tone and strength.

B. The Child's Wellbeing. Young child needs a lot of interaction with loving adults to develop his personality and intelligence. Spacing the children enables the parents to give each child more individual attention.

C. Family Finances. Parents are responsible for feeding, clothing, housing and educating each child in the family and therefore should have only as many as they can reasonably provide for.

D. Birth Defects. There is a greater incidence of birth defects and abnormal deliveries in mothers under 18 and those over 40 years of age and, therefore, women in these age groups should be aware of the greater risk involved.

PART 5

PART V

LABOR AND DELIVERY: INFORMATION FOR HEALTH WORKERS

Ideally, every mother would have a trained, caring person with her throughout labor, delivery, and the immediate postpartum period. However, since this is usually impossible in a hospital or clinic setting, we hope that a mother will be able to use the skills learned during the prenatal classes for her own comfort with only a moderate amount of attention on the part of the nursing staff. However, it goes without saying that the time you spend with the laboring mother should be used to maximum effect.

On the verbal level, it is important to explain hospital procedures and the progress of labor in terms the mother has learned in classes. For example, after a check for cervical dilitation, tell her that the cervix has dilated to a certain number of centimeters (or fingers) and how much further it has to go. Answer any questions she may have in an unhurried manner.

Remind her to breath deeply and slowly with each contraction as she has practiced in classes; you may need to breath with her through several contractions to help her establish a comfortable rhythm. Between contraction, remind her to relax completely to allow her body to work naturally to deliver her baby and to conserve her own energy. Gentle massage accompanied by soothing talk is a sure way of helping her relax. Now she should be rested and ready to handle the next contraction with confidence.

Although a mother may have learned how to control a premature urge to push during class, you may have to remind her to breath rapidly with the urge to keep from pushing against an incompletely dilated cervix. The same is true during delivery when a woman will sometimes need help panting so that she doesn't push while the health worker performs some obstetric maneuver. When a mother knows that she is less apt to tear or need an episiotomy if she can control her pushing, she will probably be quite cooperative.

Even a prepared mother may forget how to push effectively once she gets into the delivery room. Therefore, make sure she gets two deep breaths before beginning to push and instruct her to bear down steadily, getting catch breaths as she needs them.

How a mother performs in labor and delivery and how well she responds to your coaching is one measure of how effective the prenatal classes have been and also of how much trust you have been able to generate in her. Watch the laboring mother, listen to what she says, and be willing to modify you behavior to help her. Your mothers are also your teachers!

COMFORT MEASURES DURING LABOR

Several of the comfort measures for the laboring mother require your presence and skill and, therefore, you should familiarize yourself with them

before going into the labor room. In addition to the following, there may be other comfort measures you may want to consider that are unique to your situation.

A. One of the most valuable comfort measures during labor is a change of position and for this a mother will often need your aid. During early labor, a mother may be more comfortable sitting or standing through a contraction. Encourage her to do this because moving around is good for her circulation and allows gravity to help the cervix dilate. As labor progresses a mother may prefer to be in bed but she doesn't need to be supine (lying on her back), which is physically and psychologically an undesireable position for the laboring mother. Lying on either side, on hands and knees, or semi-reclining with legs falling apart are good active labor positions. Be sure to remind mothers that they don't have to stay flat on their backs for the entire labor but to experiment to find the most comfortable and relaxing position for themselves.

B. Since a full bladder is as much a hinderance to the descent of the baby as a full colon is, it is important to remind mothers to urinate at regular intervals, at least every hour.

C. Lower back pain is very common during labor so it is important that you know several relief measures to use with your mothers:

1. Pelvic rocking on back, all fours, or side-lying between contractions as learned in class.

2. Very firm sacral pressure during a contraction.

3. Application of a warm compress or ice bag to area of discomfort.

4. Positions which utilize gravity to "pull" uterus off the back, e.g. semi-lying, standing, leaning forward while sitting, side-lying, on hands and knees.

5. Passive pelvic rock: attendant presses on lower spine with one hand while pulling back on iliac crest with the other.

D. Because nurses working in labor and delivery are so knowledgeable about the course of labor and hospital procedures, they sometimes forget that the laboring mother is not as familiar with them. Therefore, you must

make a conscious effort to explain what is happening and reassure the mother that everything is proceeding normally (if not, explain this, too). Praise the mother for her efforts and compliment her on her accomplishments. By remembering this, you will not only make the mother feel good about herself and childbirth but you will also encourage the relaxation which makes birth rapid and smooth for her and her baby.

CESARIAN

Cesarian Section, or C-Section, is the name of the surgery used to remove the baby through incisions made in the abdominal wall and in the uterus rather than through the vagina. It is done when there is danger to mother or baby, such as toxemia, diabetes, placenta previo, etc. It is also used when the mother's pelvic bones are too close together to allow the baby to pass through; this is called cephalic pelvic disproportion, or CPD.

The surgery is performed by a doctor in an operating room. It may be done under general anesthetic, in which case the mother is asleep, or with a spinal type of anesthesia, in which the mother is awake but numb from the waist down. The incision is usually small and often horizontal so that the scar is barely noticeable afterwards.

Many mothers feel "inadequate" if they are not able to deliver in the normal way, especially if they have prepared themselves for a vaginal delivery. Therefore, it is important to assure them that having a Cesarian Section in no way diminishes their capacity as mothers and is the best way in this situation for them to have a safe delivery and healthy baby.

After the surgery, the mother will stay in the hospital from 5 to 8 days but will usually be out of bed within 24 hours. If she desires, she may receive pain relievers for the first several days. Reassure mothers that having a C-Section in no way inhibits their ability to breastfeed or have other children.

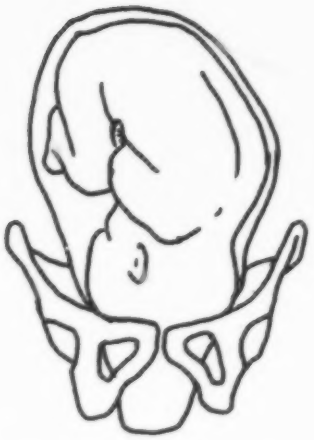
BREECH DELIVERY

Most babies are born in a cephalic, or head first, position. However, in 4%-6% of deliveries, the baby has not rotated before the onset of labor and is born bottom or feet first; this is called a breech birth. See Fig. #19. Labors for breech births are usually longer than for cephalic deliveries with the contractions centered in the back rather than in the abdomen. A mother with a baby in the breech position should be prepared for an episiotomy, which is almost always done to insure a rapid, safe delivery for the baby. Often primigravidas whose babies are breech will have a C-Section although it is not inevitable. Be sure to warn mothers that although breech babies have beautifully molded heads, they often have bruised bottoms and, in the case of boys, swollen scrotums.

IMMEDIATE POSTPARTUM

Just as mothers must be taught what to expect during the actual childbirth itself, they should be informed of what to expect once the baby has been born. By having this information in mind, they are better able to interpret what is normal and what the reasons are for getting medical attention. In

CEPHALIC POSITION



BREECH POSITION

Figure # 19

addition, they become aware of ways to help themselves make this demanding transition from pregnancy to non-pregnancy.

FUNDAL MASSAGE

Immediately after delivery, it is necessary to exert firm pressure on the abdomen just above the uterus to remove any remaining clots and reduce the possibility of hemorrage. Explain the importance of this sometimes painful procedure to mothers to insure their cooperation. Also, each mother should be taught how to locate her uterus through the abdominal wall and how to massage it periodically to keep it contracted. Tell mothers

that a properly contracted uterus feels like a grapefruit, or any other suitable fruit, and should be in the center of the abdomen.

PERINEAL CARE

After delivery, the vagina is more open than usual due to the stretching that took place when the baby passed through. Also, there are often a few lacerations in the perineal area even if an episiotomy wasn't necessary. And, of course, an episiotomy is a surgical incision that must heal. Therefore, it is very important that mothers understand the necessity for and procedure for properly bathing the perineum. Usually the nurse gives the mother her first perineal cleaning and this is an excellent time to demonstrate the proper care. First, you should tell the mother always to wipe from front to back to prevent bacteria in the rectum from contaminating the vagina and urethra. Although this is especially important during the postpartum period, it is also recommended during a woman's entire life. After every bowel movement, the perineal area should be washed with warm water and soap, repeating the procedure 3 to 4 times, each time with a different part of the cloth. Warn the mother not to pull on the stitches or traumatize the sensitive area.

Inform the mother to expect a vaginal discharge, called "lochia", during the postpartum period for about six weeks. The lochia begins as a bloody flow which gradually turns pink and finally brownish until it disappears altogether.

Lochia has a characteristic odor but should not be foul-smelling; a bad odor is a sign of infection and a health worker should be consulted if it is presented.

SORE NIPPLES AND BREAST ENGORGEMENT

Despite the best care, some mothers develop sore nipples during the first few days of nursing an infant. It is adviseable to treat the condition before it becomes a problem necessitating temporary, or even permanent weaning. There are several guidelines for sore nipples that a mother can follow in the hospital or clinic and later at home.

A. Expose the nipples to air and, if possible, to sunlight as much as possible.

B. Apply some kind of soothing ointment, such as vaseline, A & D ointment, vitamin E, or pure lanolin sparingly between nursings.

C. Nurse more frequently for shorter periods (10 min. on each side) until soreness disappears.

D. Hand express a small amount of milk from areola before nursing so baby can get a good grasp of the nipple (Figure # 20)

E. Put ice or ice water on nipple until pain eases.

F. For persistant soreness, a carefully used sunlamp may help.

G. Change positions for feedings to put stress on different areas of the nipple.

H. Relax and enjoy your baby!

Another problem related to nursing in the early days is breast engorgement which occurs when the milk "comes in", from 2 to 5 days after delivery.

This can be very uncomfortable but is no reason to discontinue breastfeeding. Remind mothers that this is a temporary condition and that the best relief is nursing the baby. Hand expression of milk when the discomfort is intense will give relief without robbing the baby of needed nourishment. A well-fitting bra with good support, worn day and night, will relieve pressure and will help prevent stretch marks and sagging.

GETTING STARTED AT BREASTFEEDING

Many mothers, especially those giving birth for the first time,may need some help in getting started to breastfeed their babies. These general suggestions would apply to all mothers though regardless of their parity or length of stay in the hospital.

A. Nurse soon and often: every three hours or less day and night.

B. Be comfortable: learn to nurse both sitting and lying down.

C. Getting baby started:

1. While supporting breast, press it back from nipple.
2. Bring baby close until his cheek touches breast setting off sucking reflex.
3. Help baby grasp nipple and some of the areola in his mouth.
4. Let baby suck about 10 mins. on a side at each feeding for the first few days then increase length of time.

D. Removing baby from breast: press breast away from corner of baby's mouth until the suction is broken.

Reassure mothers that for both mother and baby breastfeeding is a learning experience. Although a fullterm baby will have an innate sucking (or rooting)

reflex, he will need help in getting the entire nipple and part of the aerole in his mouth. He will also need to be burped regularly so that air that he has swallowed during nursing will be released before causing discomfort. A little spitting up is common in new babies and should not be a cause for alarm. Inform mothers that a breastfed baby's stools are naturally very loose and should not be confused with diarrhea.

Finally, make sure that the mothers understand that the more the baby nurses, the more milk there will be, and conversely. Therefore, it should be obvious that the way to establish an adequate milk supply is to nurse the baby frequently and avoid using artificial supplements and introducing solid foods too early.

CONCLUSION

Pregnancy and birth are exciting events in the life of a woman and her family. We hope that the material we have provided in this manual will help health personnel to have a better understanding of what the prepared childbirth experience is like and that they, in turn, can communicate their enthusiasm and knowledge to expectant parents.

This book is only a beginning and we have, by no means, covered the entire subject of prepared childbirth. We have tried to include the basic information, hoping to encourage further in depth reading and preparation.

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APPENDIX A

SUGGESTED TEACHING AIDS

First Prenatal Class

1. Posters:

   a. Male Reproductory System
   b. Internal and External Female Reproductory Systems
   c. Menstrual Cycle
   d. Fetal Development
   e. 4 Basic Food Groups

2. Handout on exercises (sample on page 74)

3. Examples of shoes, bras, and clothing suitable for pregnancy

4. Pictures or labels of locally available foods to be used on a flannel board

5. Tray with chunks of fruits and vegetables or other nutritious snacks to be passed around

Second Prenatal Class

1. Posters:

   a. True-False Labor
   b. Cervical dilitation in centimeters
   c. Advantages of Breastfeeding

2. Knitted uterus for showing effect of contractions on cervix (directions on page 71).

3. Blackboard and chalk for showing the pattern of a uterine contraction and applying the breathing to it

4. Sample of locally available lubricants for preparing nipples for breastfeeding

5. Handouts on breastfeeding from or sample on page

   a. UNICEF

   b. La Leche League International
      9616 Minneapolis Avenue
      Frankling Park, Illinois
      United State of America

Third Prenatal Class

1. Poster of Second Stage of Labor
2. Blackboard and chalk
3. Pillows or cushions for simulating ideal pushing position
4. Checklist of items to take to hospital (sample on page 73)

Fourth Pre or Postnatal Class

1. Poster on Nutrition on page 23
2. Life-size baby doll and infant care equipment for showing care of newborn
3. Exercise shee:

MAKING A KNITTED UTERUS

Materials Needed:

Knitting worsted, 2 ounces
1 set double-pointed needles, size 6 (4 needles)
1 doll or child's ball, 3½ inches is diameter
Old stockings or cloth for stuffing
Rayon seam binding or ribbon, 16 inch length

Directions:

Cast on 48 sts. Divide evenly on three needles. Join. K2, P2 until cuff measures 2 inches. First round, incr. 1 st. in every 6th st. - 56 sts. K evenly for 6 rounds. 8th round, incr. 1 st. in every 7th st. - 64 sts. K evenly for 6 rounds. 15th round, incr. 1 st. in every 8th st. - 72 sts. K evenly for 6 rounds. 22nd round, incr. 1 st. in every 9th st. - 80 sts. K evenly for 6 rounds. 29th round, incr. 1 st. in every 19th st. - 88 sts. K evenly for 6 rounds. 36th round, incr. 1 st. in every 11th st. - 96 sts. K evenly for 6 rounds. 43rd round, incr. 1 st. in every 12th st. - 104 sts. K evenly for 6 rounds.

Decrease:

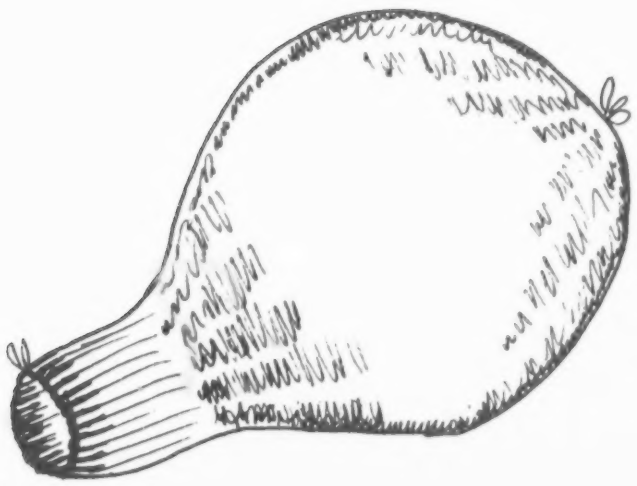
First needle *K 11sts. slip, K, pass, repeat from* for entire round. Next round, *K 10 sts. slip, K, pass, repeat from * for entire round. Next round, *K 9 sts. slip, K, pass, repeat from * for entire round. Next round, *K 8 sts. slip, K, pass, repeat from * for entire round. Next round, *K 7 sts., slip, pass, repeat from * for entire round. Next round, *K 6 sts. slip, K, pass repeat from * for entire round. Next round, *K 5 sts. slip, K, pass, repeat from * for entire round. Next round, *K 4 sts. slip, K, pass, repeat from * for entire round. Next round, *K 3 sts. slip, K, pass, repeat from * for entire round. Next round, *K 2 sts. slip, K, pass, repeat from * for entire round. Next round, *K 1, slip, K, pass, repeat from * for entire round. Next round, * slip, K, pass, repeat from * for entire round.

Finishing:

Draw yarn through remaining 8 stitches and fasten. Stuff with stockings or cloth. Inser doll's head or ball. Weave seam binding or ribbon through "external os," to control opening.

Using the knitted uterus:

Although this teaching aid is not lifelike in size or appearance, it is a very effective way of demonstrating how labor contractions push the baby down and pull up on the cervix at the same time. In this manner, both effacement and dilitation are readily visible.



The knitted uterus

APPENDIX B

SAMPLE HANDOUT

CHECKLIST FOR HOSPITAL

FOR MOTHER:

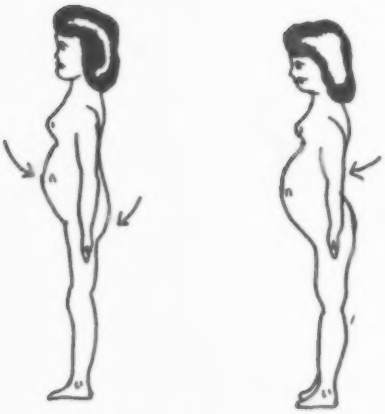
_____ 2 or 3 nightgowns
_____ Sanitary napkins
_____ Slippers
_____ Well-fitting bra
_____ Tooth brush and tooth paste
_____ Soap
_____ Toilet paper
_____ Extra underwear
_____ Other

FOR BABY:

_____ 2 warm blankets
_____ 6 - 12 diapers
_____ 2 or 3 undershirts
_____ 2 or 3 sweaters
_____ Booties
_____ Sheets for crip
_____ Baby oil, powder, etc.
_____ Other

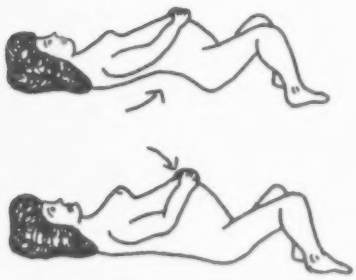
PRE-NATAL EXERCISES

1) Pelvic Tilt



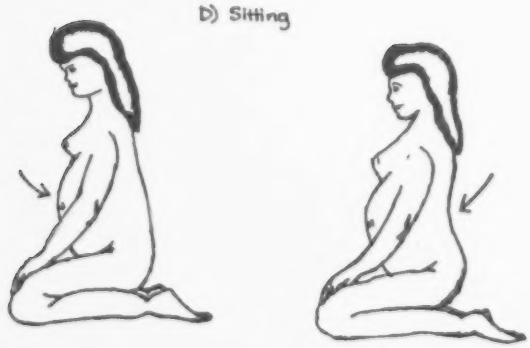
A) Standing

B) Supine



C) Kneeling on all fours

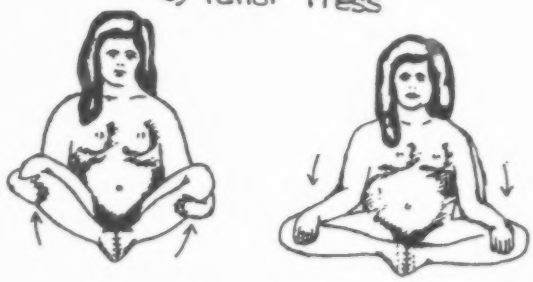
D) Sitting



2) Sand Digging

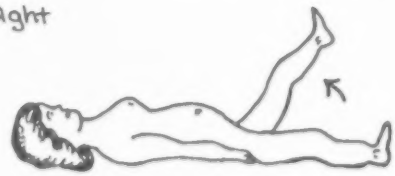
Rotate feet in full circles to alleviate leg and foot cramps

3) Tailor Press

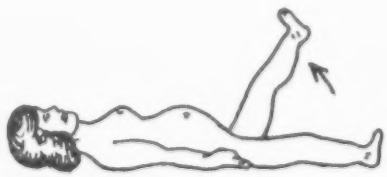


4) Leg Lifts

A) Straight



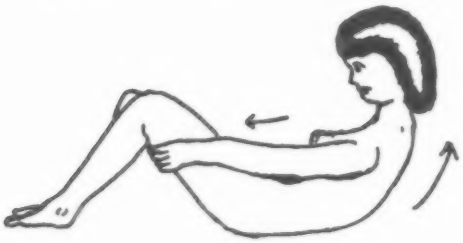
B) Bent



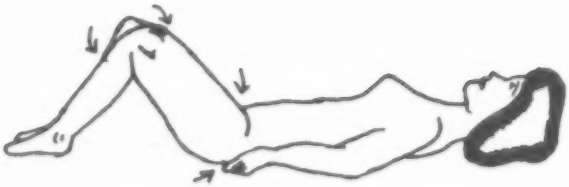
POST-PARTUM EXERCISES

1) Head Lift – immediately

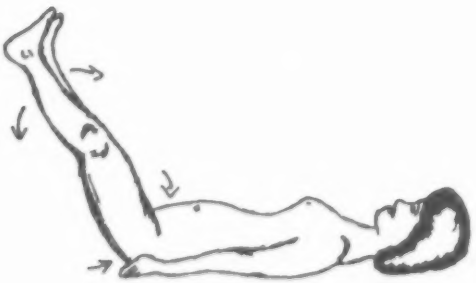
2) Back Curl – after 2 weeks



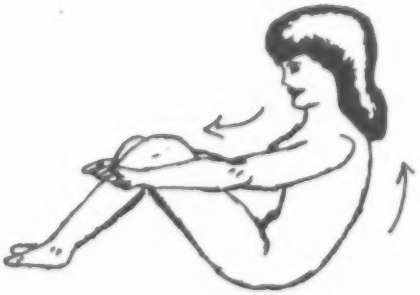
Reach to knees.
Then reach past
right thigh,
then left thigh.



3) Knee Rolls – after 2 weeks



Knee Rolls – after 6 weeks



4) Sit Ups – after 6 weeks

TYPE OF DISCOMFORT	COMFORT MEASURES
Hemorroids, swelling around vagina	Pelvic floor exercises, lying supine with hips elevated
Heartburn	Small meals, remain upright after meals, drink warm milk
Constipation	Plenty of fluids, regular exercise, raw fruits and vegetables
Breathlessness	Good posture, arm circling, side-lying
Swelling of feet, ankles	Leg elevating, leg lifts
Varicose veins (in legs)	Leg elevating, calf stretching
Cramps in legs	Leg elevating, calf stretching
Lower backache	Good posture, pelvic tilting
Abdominal muscle spams (stitch)	Lying on affected side
Numbness in arms, fingers	Arm circling
Nausea	Small meals, crackers before breakfast
Bleeding gums	Salt water rinses daily
Excessive salivation	Chew mints or gum, avoid vegetables high in starch
Nasal congestion	Moderate use of inhalers or nose drops
Insomnia	Warm bath before bed
Vaginal discharge (leukorrhea)	Bathing with use of soft washcloth

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Note: These comfort measures are for the common complaints of pregnancy. You should consult your Dr. if you have a severe or persisting problem.

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Since 1961 when the Peace Corps was created, more than 80,000 U.S. citizens have served as Volunteers in developing countries, living and working among the people of the Third World as colleagues and co-workers. Today 6000 PCVs are involved in programs designed to help strengthen local capacity to address such fundamental concerns as food production, water supply, energy development, nutrition and health education and reforestation.

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